AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A network interface controller, comprising:

a hashing logic to generate a hashing value from a packet received from a network including an index to a table content derived from a transformation of information in a header of the packet, wherein the received packet has a context associated therewith;

a memory to store:

a hash table pages table to store a physical page address of a host hash table stored in a host memory of a host; and

a context table pages table to store a physical page address of a host context table; and

a cache line determinator in communication with the host and the hashing logic, the cache line determinator being configured to:

determine a hash node page and a context table page corresponding to the hashing value;

lookup the physical address of the hash table page from the hash table pages table;

lookup the physical address of the context table page from ~~the hash~~ the context table pages table;

determine the host hash cache line using the physical address of the hash table page and an offset of the hash value within the hash table page;

determine the host context cache line using the physical address of the context table page and an offset of the hash value within the context table page;

associate the hashing value with the host hash table cache line using the hash table pages table; and

associate the hashing value with the host context table cache line in the host memory using the context table pages table.

2. (Original) The network interface controller of claim 1, wherein the hashing logic is configured to generate the hashing value from the context associated with the received packet.

3. (Original) The network interface controller of claim 1, wherein each entry in the hash table pages table and the context table pages table correspond to a page in the host memory, the host memory being in communication with the network interface controller.

4. (Currently Amended)

5. (Original) The network interface controller of claim 1, wherein upon initialization, the network interface controller is configured with a set number of hash node entries in the hash table of the host memory.

6. (Original) The network interface controller of claim 1, wherein the network interface controller is configured to insert the host context table cache line and the host hash table cache line into a receive descriptor associated with the received packet and to output the receive descriptor to the host.

7. (Currently Amended) The ~~method~~ network interface controller of claim 1[[,]] ~~further comprising:~~

~~issuing~~ wherein a pre-fetch of the host context table cache line and the host hash table cache line is issued.

8. (Currently Amended) A network interface controller, comprising:

a hardware card comprising:

a hashing logic to generate a hashing value from a packet received from a network including an index to a table content derived from a transformation of information in a header of the packet, wherein the received packet has a context associated therewith;

a cache line determinator in communication with the hashing logic, the cache line determinator being configured to;

determine a hash node page and a context table page corresponding to the hashing value,

lookup the physical address of the hash table page from the hash table pages table,

lookup the physical address of the context table page from ~~the hash~~ the context table pages table,

determine the host hash cache line using the physical address of the hash table page and an offset of the hash value within the hash table page,

determine the virtual host hash table cache line using the physical address of the context table page and an offset of the hash value within the context table page,

associate the hashing value with the host hash table cache line using the hash table pages table; and

associate the hash value with the virtual host hash table cache line and the virtual host context table cache line in a memory of a host of the network interface controller,

wherein the network interface controller is configured to issue a pre-fetch of the host context table cache line and the host hash table cache line to the host.

9. (Original) The network interface controller of claim 8, wherein the hashing logic is configured to generate the hashing value from the context associated with the received packet.

10. (Previously Presented) A method for processing incoming packets from a network, comprising:

hashing, by a network interface controller in communication with a host and a network, a packet received from the network, wherein the packet has a context associated therewith to generate a hash value from context of the received packet including an index to a table content derived from a transformation of information in a header of the packet;

computing a host hash table cache line in a host memory of the host using the hash value and using a hash table pages table stored in a memory of the network interface controller and storing physical page addresses of a host hash table stored in the host memory of the host;

computing a host context table cache line in the host memory using the hash value and using a context table pages table stored in a memory of the network interface controller and storing physical page addresses of a host context table stored in the host memory of the host; and

issuing a pre-fetch of the host context table cache line and the host hash table cache line;

wherein computing the host hash table cache line includes;

determining a hash node page and a context table page corresponding to the hash value;

looking up the physical address of the hash table page and the context table page from the hash table pages table and the context table pages table, respectively; and

determining the host hash cache line and the host context cache line using the physical address of the hash table page and the context table page and an offset of the hash value within the hash table page and the context table page, respectively.

11. (Original) The method of claim 10, wherein each entry in the hash table pages table and each entry in the context table pages table correspond to a page in the host memory.

Claim 12 (Cancelled)

13. (Original) The method of claim 10, further comprising initializing the network interface controller, the initializing including configuring the network interface controller with a fixed number of hash node entries in the hash table of the host memory.

14. (Original) The method of claim 13, the initializing further comprising loading a hash table pages table and a context table pages table.

15. (Original) The method of claim 10, further comprising:

inserting the host context table cache line and the host hash table cache line into a receive descriptor associated with the received packet; and

outputting the receive descriptor to the host.

16. (Original) The method of claim 10, further comprising: issuing a pre-fetch of the host context table cache line and the host hash table cache line.

17. (Previously Presented) A computer program product stored on a computer readable medium to process packets, the program including instructions for causing at least one processor to:

hash, by a network interface controller in communication with a host and the network, a packet received from the network, the packet having a context associated therewith to generate a hash value from context of the received packet including an index to a table content derived from a transformation of information in a header of the packet;

compute a host hash table cache line in a host memory of the host using the hash value and using a hash table pages table stored in a memory of the network interface controller and storing physical page addresses of a host hash table stored in the host memory; and

compute a host context table cache line in the host memory using the hash value and using a context table pages table stored in the memory of the network interface controller and storing physical page addresses of a host context table stored in the host memory; and

issuing a pre-fetch of the host context table cache line and the host hash table cache line;

wherein the instructions to compute the host hash table cache line further include instructions for causing the at least one processor to;

determine a hash node page and a context table page corresponding to the hash value;

lookup the physical address of the hash table page and the context table page from the hash table pages table and the context table pages table, respectively; and

determine the host hash cache line and the host context cache line using the physical address of he hash table page and the context table page and an offset of the hash value within the hash table page and the context table page, respectively.

Claims 18 and 19 (Cancelled)

20. (Original) The computer program product of claim 17, further comprising the instructions for causing at least one processor to:

insert the host context table cache line and the host hash table cache line into a receive descriptor associated with the received packet; and

outputting the receive descriptor to the host.

21. (Original) The computer program product of claim 17, further comprising the instructions for causing at least one processor to:

issue a pre-fetch of the host context table cache line and the host hash table cache line.

22. (Currently Amended) A system, comprising:

a host CPU;

a host memory;

a network interface controller (NIC); and

a host bus to facilitate the host CPU, host memory, and the NIC to communicate therebetween,

wherein the NIC comprises:

a hashing logic to generate a hashing value from a packet received over a network including an index to a table content derived from a transformation of information in a header of the packet, the received packet having a context associated therewith;

a hash table pages table to store a physical page address of a host hash table stored in the host memory of the host CPU; and

a context table pages table to store a physical page address of a host context table stored in the host memory of the host CPU; and

a cache line determinator in communication with the host bus and the hashing logic, and

wherein the cache line determinator is configured to:

determine a hash node page and a context table page corresponding to the hashing value;

lookup the physical address of the hash table page from the hash table pages table;

lookup the physical address of the context table page from ~~the hash~~ the context table pages table;

determine the host hash cache line using the physical address of the hash table page and an offset of the hash value within the hash table page;

determine the host context cache line using the physical address of the context table page and an offset of the hash value within the context table page;

associate the hashing value with the host hash table cache line using the hash table pages table; and

associate the hashing value with the host context table cache line in the host memory using and the context table pages table.

23. (Original) The system of claim 22, wherein the host CPU is configured to issue a pre-fetch of the host context table cache line and the host hash table cache line.

24. (Original) The system of claim 22, wherein the hashing logic is configured to generate the hashing value from the context associated with the received packet.

25. (Original) The system of claim 22, wherein each entry in the hash table pages table and the context table pages table correspond to a page in the host memory, the host memory being in communication with the network interface controller.

Claims 26 and 27 (Cancelled)

28. (Original) The system of claim 22, wherein upon initialization, the network interface controller is configured with a set number of hash node entries in the hash table of the host memory.

29. (Original) The system of claim 22, wherein the network interface controller is configured to insert the host context table cache line and the host hash table cache line into a receive descriptor associated with the received packet and to output the receive descriptor to the host.

30. (Original) The system of claim 22, wherein the network interface controller is configured to issue a pre-fetch of the host context table cache line and the host hash table cache line.